

Mr. Dearden

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BEFORE  
THE ROYAL COMMISSION  
ON  
ENERGY

P. 2, 4, 8, 9, 13, 14, 15, 16, 18.



A  
Submission by  
McColl-Frontenac Oil Company Limited  
at  
Calgary, Alberta  
May, 1958.



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ENERGY ×



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*Data and estimates contained in this report were developed by The Economics and Statistical Division of McColl-Frontenac, unless otherwise noted.*

## PROBLEM 1

Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  be a function satisfying the functional equation

$$f(x+y) = f(x) + f(y) \quad \text{for all } x, y \in \mathbb{R}.$$

Assume that  $f$  is continuous at the origin.

(a) Show that  $f$  is linear, i.e.,  $f(x) = cx$  for some constant  $c \in \mathbb{R}$ .

(b) Show that  $f$  is continuous everywhere.

(c) Show that  $f$  is differentiable everywhere and find  $f'(x)$ .

(d) Show that  $f$  is a homomorphism from the additive group of real numbers to the additive group of real numbers.

(e) Show that  $f$  is a linear transformation from the vector space of real numbers over the field of real numbers to the vector space of real numbers over the field of real numbers.

(f) Show that  $f$  is a linear map from the vector space of real numbers over the field of real numbers to the vector space of real numbers over the field of real numbers.

(g) Show that  $f$  is a linear map from the vector space of real numbers over the field of real numbers to the vector space of real numbers over the field of real numbers.

## PLATES

PLATE Ia — Supply and Use of Crude Oil plus Imports and Exports of  
Petroleum Products—1930

PLATE Ib — Petroleum Demand and Refinery Runs by Province—1930

PLATE IIa — Supply and Use of Crude Oil plus Imports and Exports of  
Petroleum Products—1940

PLATE IIb — Petroleum Demand and Refinery Runs by Province—1940

PLATE IIIa — Supply and Use of Crude Oil plus Imports and Exports of  
Petroleum Products—1950

PLATE IIIb — Petroleum Demand and Refinery Runs by Province—1950

PLATE IVa — Supply and Use of Crude Oil plus Imports and Exports of  
Petroleum Products—1957

PLATE IVb — Petroleum Demand and Refinery Runs by Province—1957





# SUBMISSION TO THE ROYAL COMMISSION ON ENERGY

BY

## McCOLL-FRONTENAC OIL COMPANY LIMITED

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The following submission, presented at the invitation of the Royal Energy Commission, is addressed to two subjects: proposals for the extension of pipeline facilities to carry crude oil from Western Canada to Montreal, and proposals for the creation of an Energy Board.

### I — Recommendations

The recommendations of McColl-Frontenac are:

1. That it would be imprudent at this time to decide upon construction of a pipeline to carry Canadian crude oil to Montreal as a means of correcting the present difficulties of Alberta crude oil producers. We believe that these difficulties, which are serious at the present time, are of short-term character. In our opinion, Alberta crude will find substantial and growing outlets in natural markets which are less distant than Montreal. Further, we are concerned that if large-scale investment were made in a pipeline to Montreal, the steps necessary to protect such investment under changing conditions would imperil the flexibility and efficiency of the petroleum industry, and could increase unnecessarily the cost of petroleum products to consumers in certain areas of Eastern Canada.
2. That the Canadian national interest requires no new governmental functions pertaining to the petroleum industry, and that establishing a National Energy Board would encourage the encroachment of political and sectional considerations upon economic factors in regard to the industry.

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In reviewing these problems, McColl-Frontenac has started from the premise that the petroleum industry has a responsibility to do its full part in the continuing development of the Canadian economy as a whole. While our recommendations are negative in form, it is our opinion that they are positive and constructive in substance. Governmental intervention of various kinds often appears to be the most direct way of achieving certain objectives. But it is our opinion that increased governmental involvement would tend to weaken rather than to strengthen the petroleum industry as well as the contribution it can make to the economic growth of the country. We believe that the record of the petroleum industry in Canada during the past ten years illustrates that it can operate most capably under the guidance of private initiative.



## II — McColl-Frontenac's Position in the Industry

Our Company is one of the larger units of the Canadian petroleum industry, particularly in regard to refining and marketing activities. We have been active in the petroleum business in Canada as a chartered corporation since 1927. Our predecessor companies were in operation well before the end of the 19th Century.

McColl-Frontenac currently sells petroleum products in all Provinces except Newfoundland. During 1957 our sales of petroleum products amounted to approximately 76,500 barrels daily. We operate refineries at Montreal, Port Credit, and Edmonton, with crude runs to stills averaging 81,200 barrels daily in 1957.

In addition, we have producing interests in Western Canada. In 1957 our Canadian crude oil production was about 6,100 barrels daily. The Texas Company, which owns approximately 65% of McColl-Frontenac's outstanding common shares, has substantial other producing interests in Western Canada, mainly in Alberta, which accounted for about 35,600 barrels of daily crude oil production in 1957. + 90

McColl-Frontenac has an 18% interest in the Portland-Montreal crude oil pipeline system, with a capacity of 253,000 barrels daily, and a  $33\frac{1}{3}\%$  interest in the Trans-Northern pipeline, with 65,000 barrels daily capacity, which extends from Montreal to Toronto, Hamilton, and Ottawa.





### **III — The Growth of Canada's Petroleum Industry**

In order to provide historical perspective, we present in the immediately following pages a series of charts, showing broad outlines of the industry in 1930, 1940, 1950, and 1957. The upper charts, for the respective years, show the changing pattern of petroleum supply. The lower charts show the growth and geographic distribution of petroleum demand and refinery runs. The data reflected in these charts will be found in Exhibits A-1 and A-2, respectively.

From these charts three points in particular become apparent:

1. Especially in recent years, there has been very rapid growth in Canadian demand for petroleum products. In 1940 domestic petroleum demand in the whole of Canada amounted to 161,000 barrels daily. By 1950 it had more than doubled, to 370,000 barrels daily, and in the following seven years was again about doubled, reaching 738,000 barrels daily. The increase in this latter period was at an average rate of 10.4% annually. (In the United States during the same period domestic petroleum demand was increasing at a rate of 4.4% annually.)

2. Particularly in 1950-57, there was rapid growth in demand and in refinery runs in the areas of Canada to the west of the Province of Quebec. Demand in this area increased from 243,000 to 482,000 barrels daily, and refinery runs from 165,000 to 376,000 barrels daily. (Comment concerning future trends in this area will be made later in the submission.)

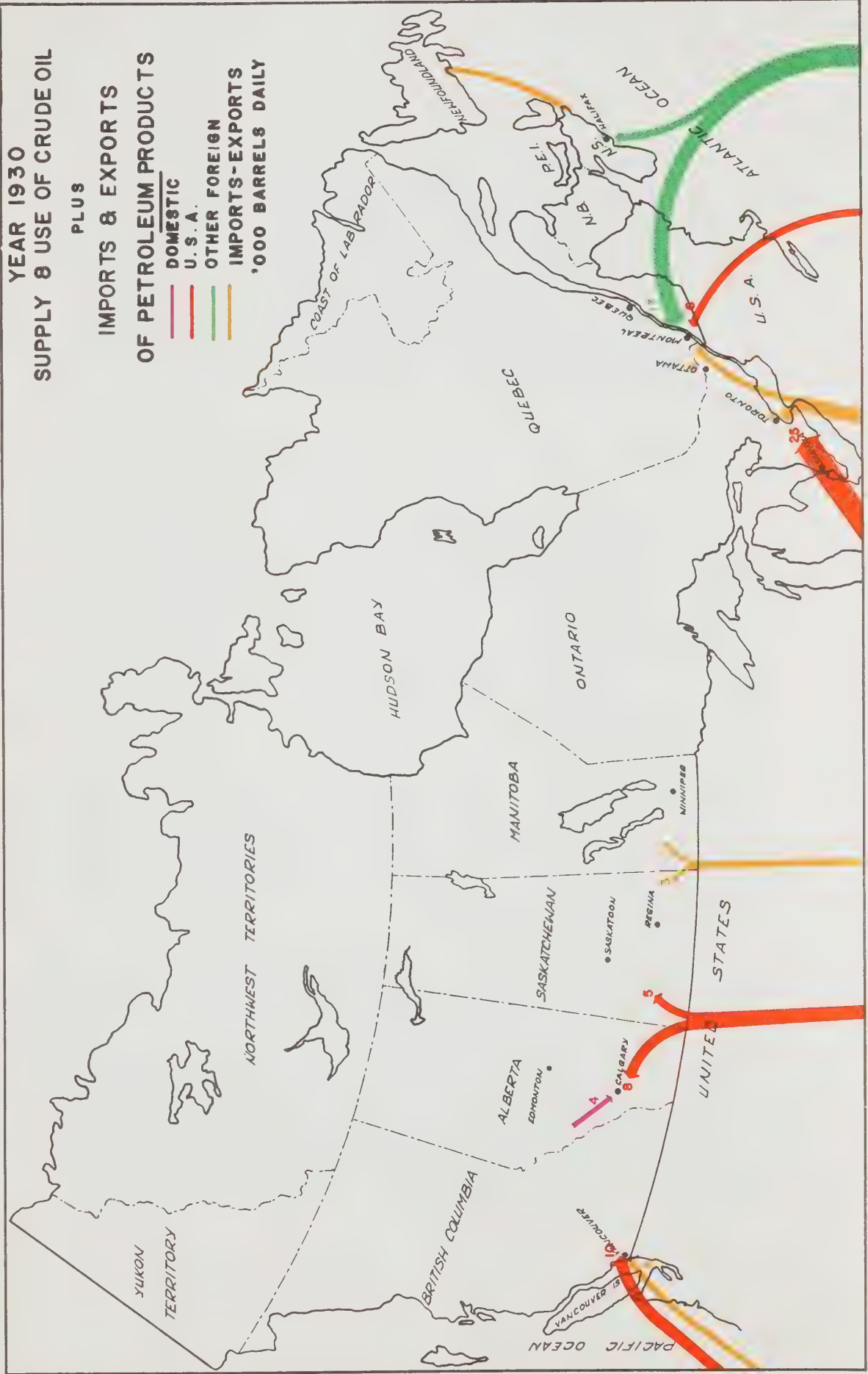
3. As soon as Canadian crude became available in quantity, the industry moved rapidly to make space for this new supply, primarily in Canada but also in export markets. As a result, Canadian crude production grew from about 80,000 barrels daily in 1950 to over 500,000 barrels daily in 1957. We wish to emphasize that the construction of new transportation facilities and the other adjustments in the structure of the Canadian industry necessary for this rapid expansion of Canadian crude output were carried through by private companies on the basis of private initiative.

# YEAR 1930 SUPPLY & USE OF CRUDE OIL

PLUS

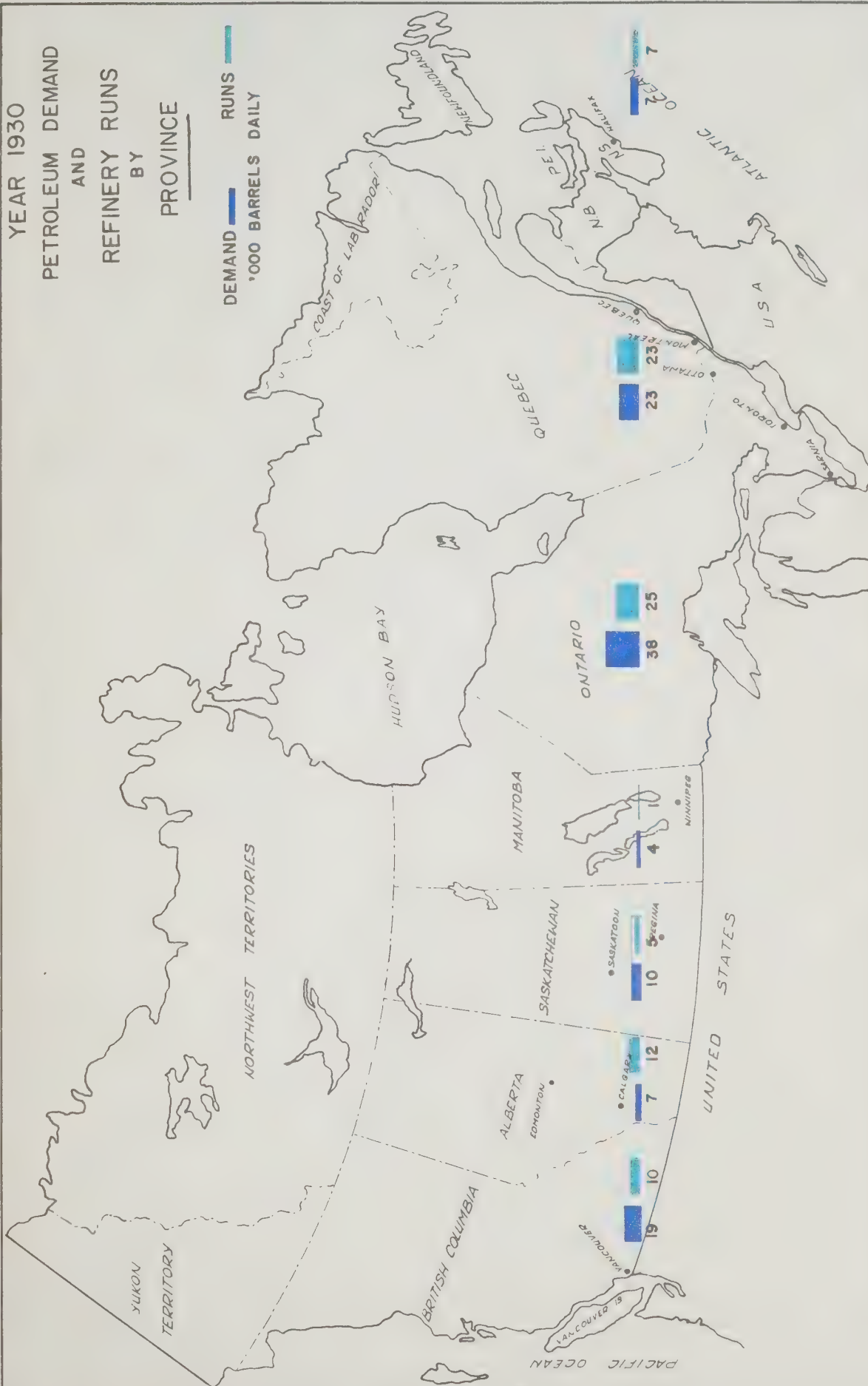
## IMPORTS & EXPORTS OF PETROLEUM PRODUCTS

- DOMESTIC
- U.S. A.
- OTHER FOREIGN
- IMPORTS-EXPORTS
- '000 BARRELS DAILY



YEAR 1930  
 PETROLEUM DEMAND  
 AND  
 REFINERY RUNS  
 BY  
 PROVINCE

DEMAND — RUNS  
 '000 BARRELS DAILY



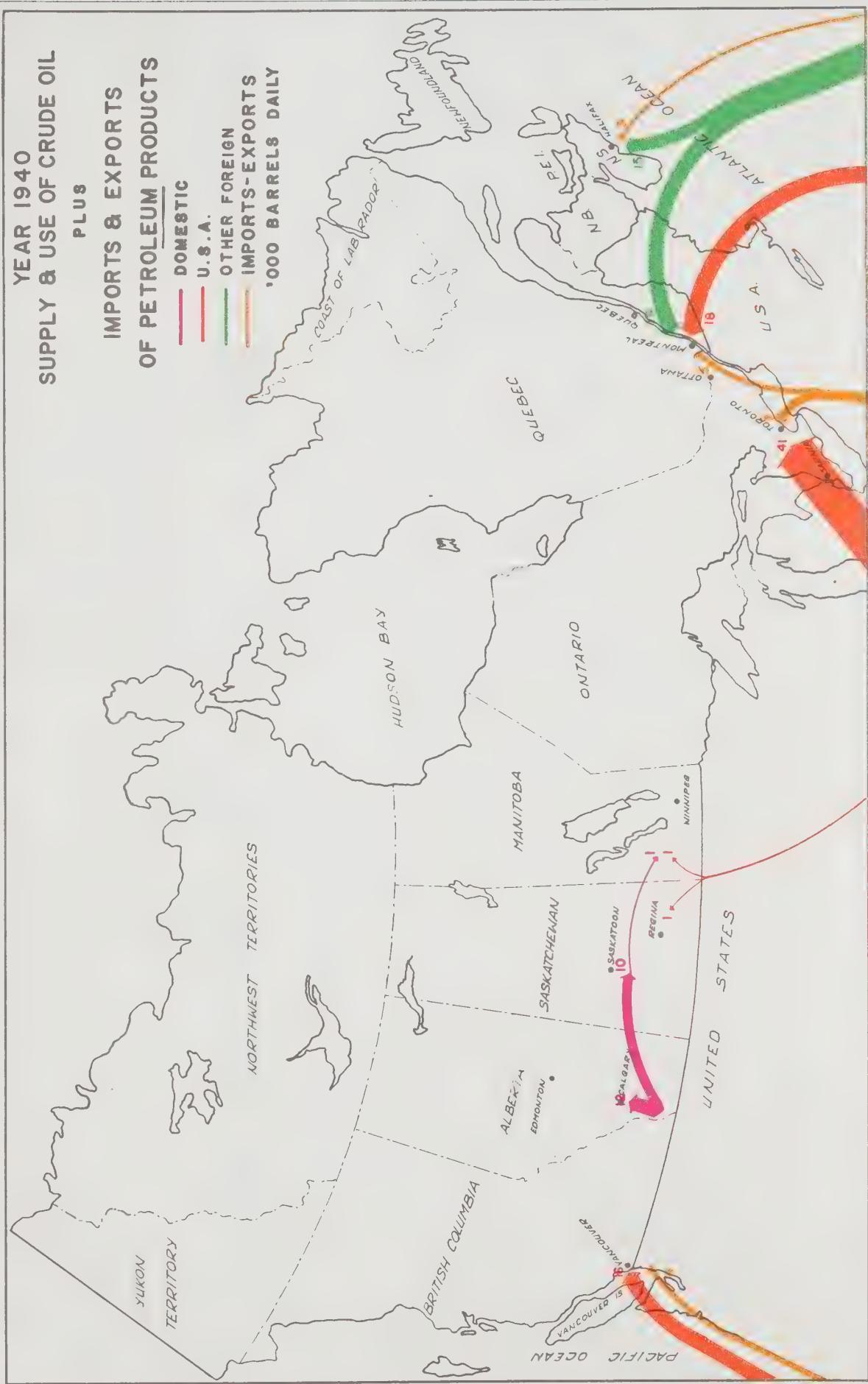
# YEAR 1940 SUPPLY & USE OF CRUDE OIL

PLUS

## IMPORTS & EXPORTS

## OF PETROLEUM PRODUCTS

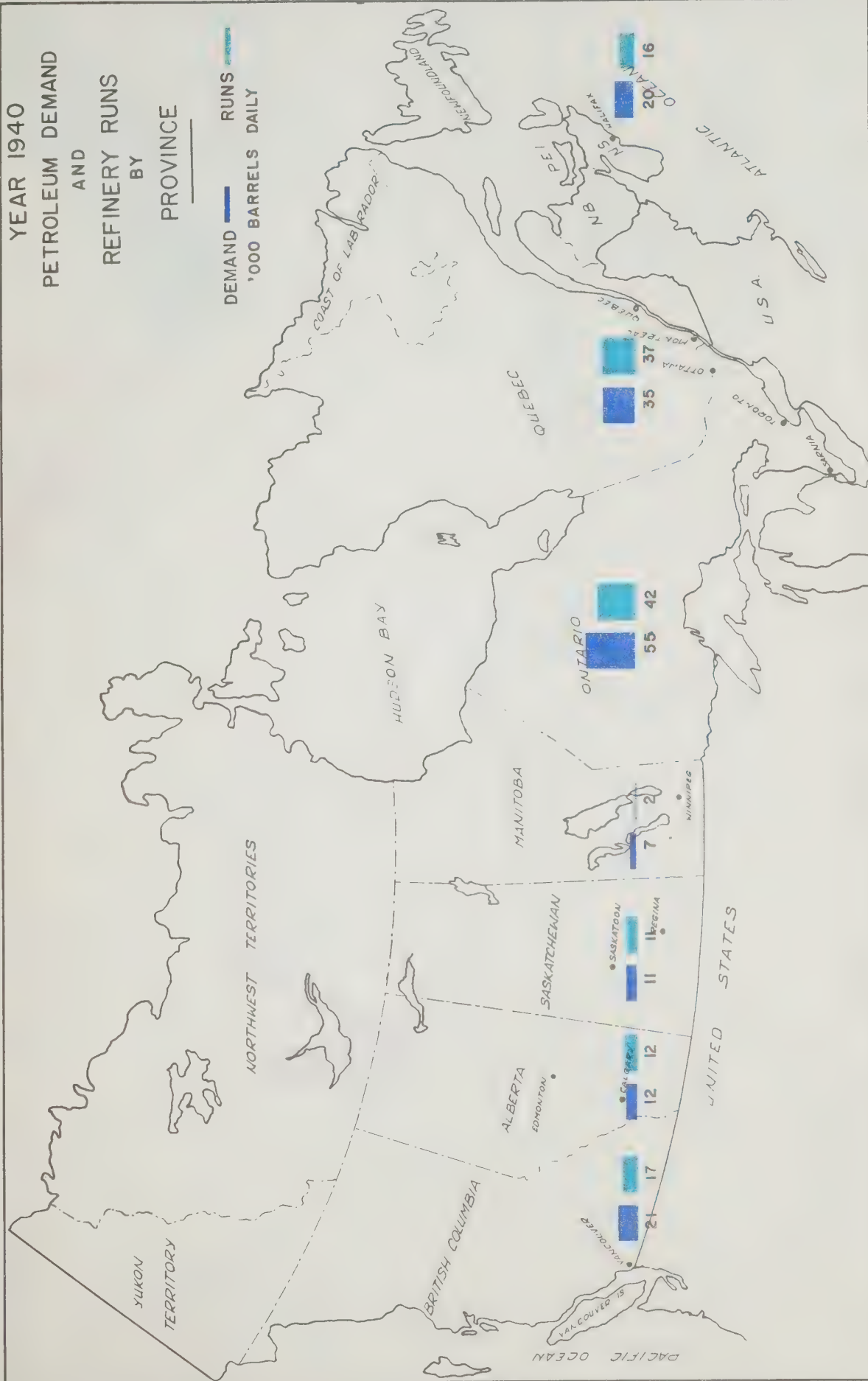
- DOMESTIC
- U.S.A.
- OTHER FOREIGN
- IMPORTS-EXPORTS
- '000 BARRELS DAILY





# YEAR 1940 PETROLEUM DEMAND AND REFINERY RUNS BY PROVINCE

DEMAND — RUNS  
'000 BARRELS DAILY

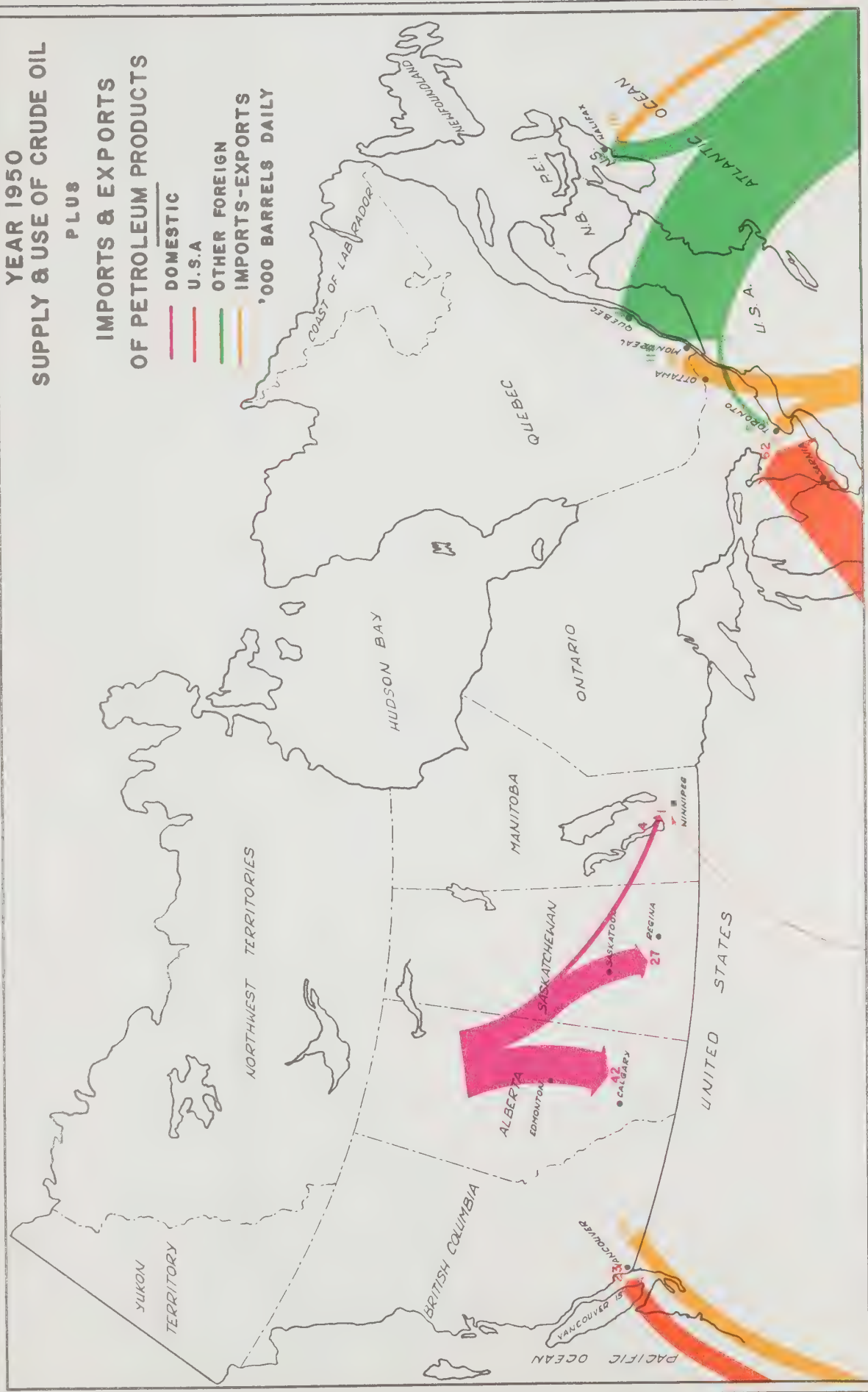


# YEAR 1950 SUPPLY & USE OF CRUDE OIL

PLUS

## IMPORTS & EXPORTS OF PETROLEUM PRODUCTS

- DOMESTIC
- U.S.A
- OTHER FOREIGN
- IMPORTS-EXPORTS
- '000 BARRELS DAILY



YEAR 1950

PETROLEUM DEMAND

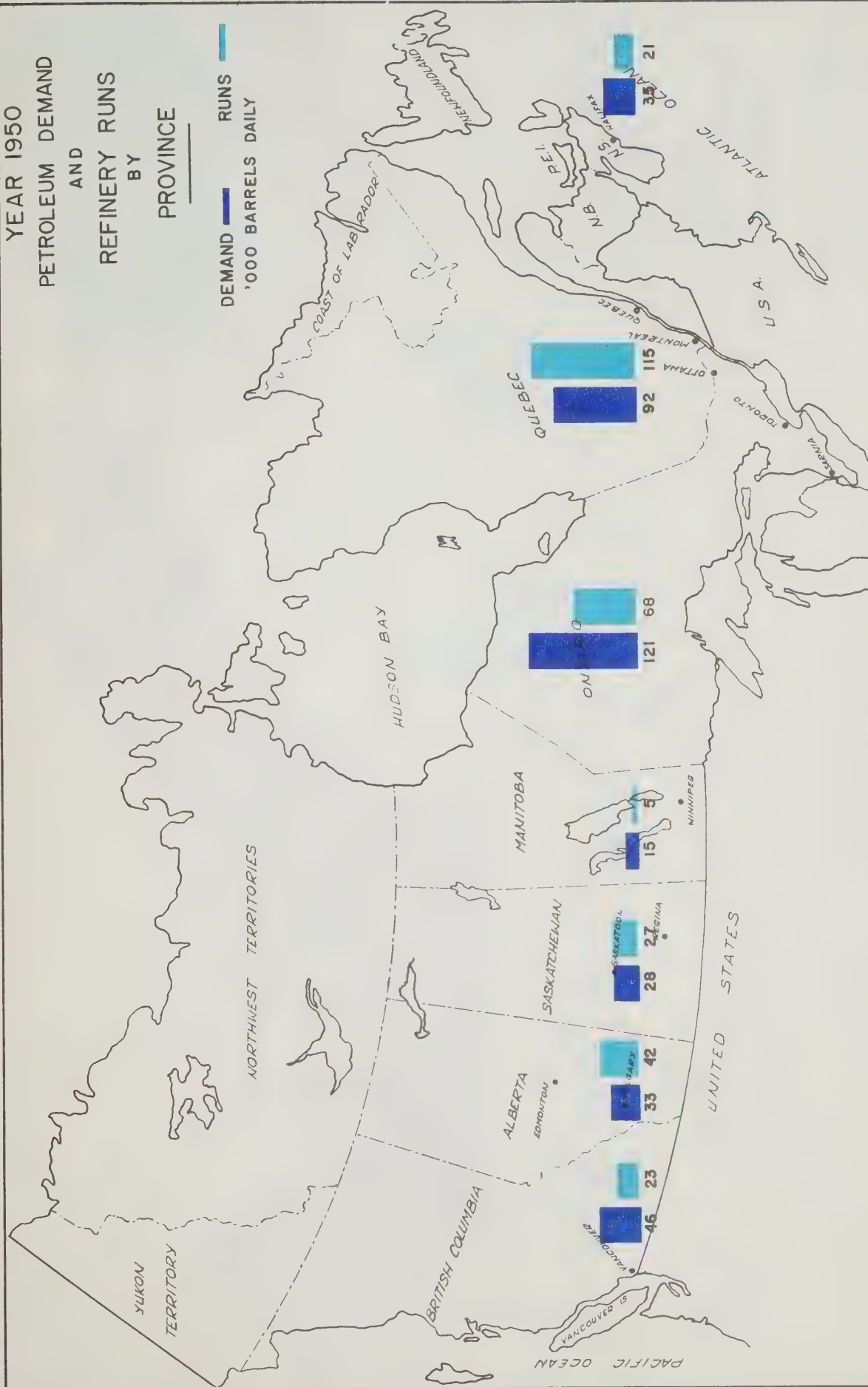
AND

REFINERY RUNS

BY

PROVINCE

DEMAND RUNS  
'000 BARRELS DAILY

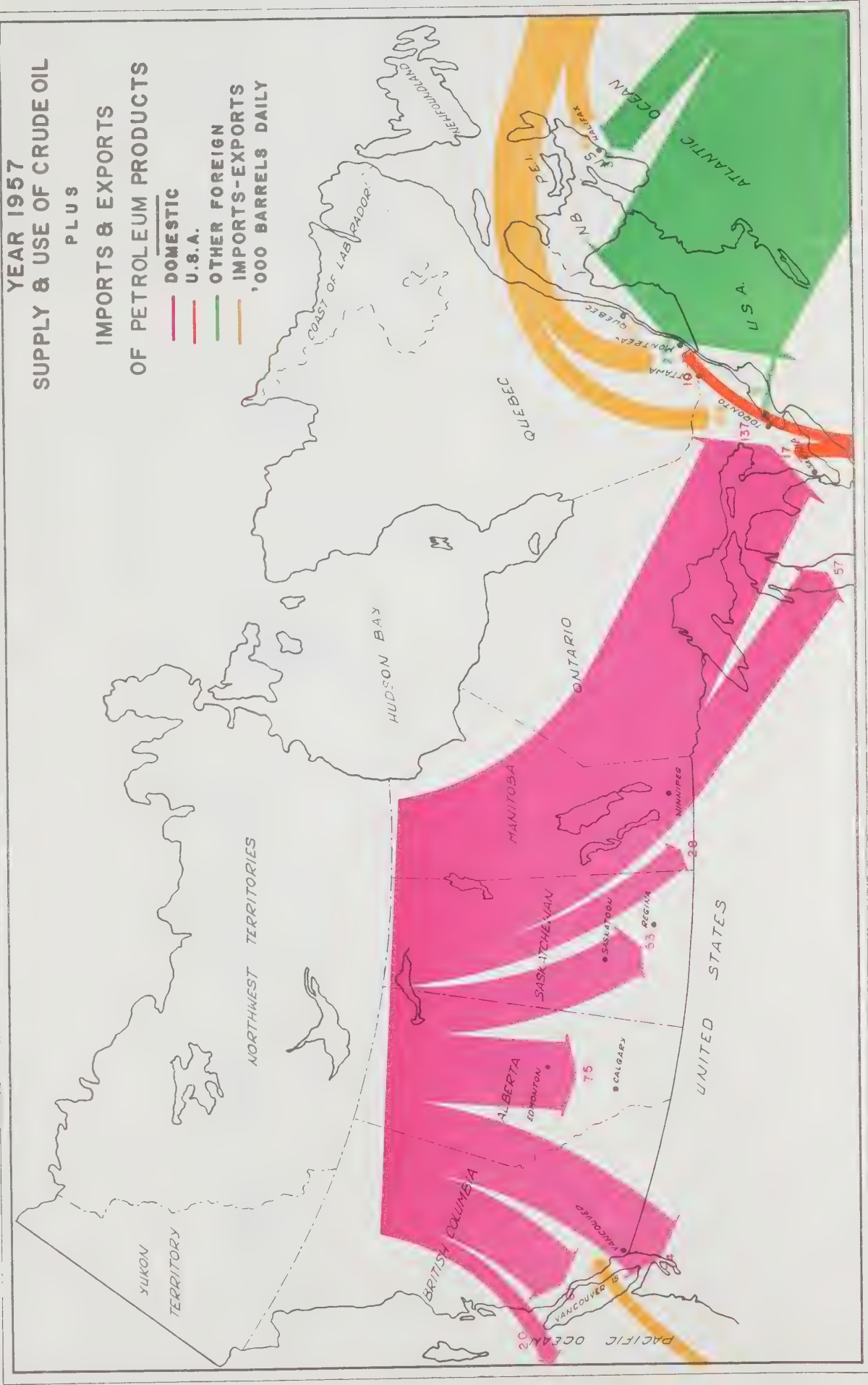


# YEAR 1957 SUPPLY & USE OF CRUDE OIL

PLUS

## IMPORTS & EXPORTS OF PETROLEUM PRODUCTS

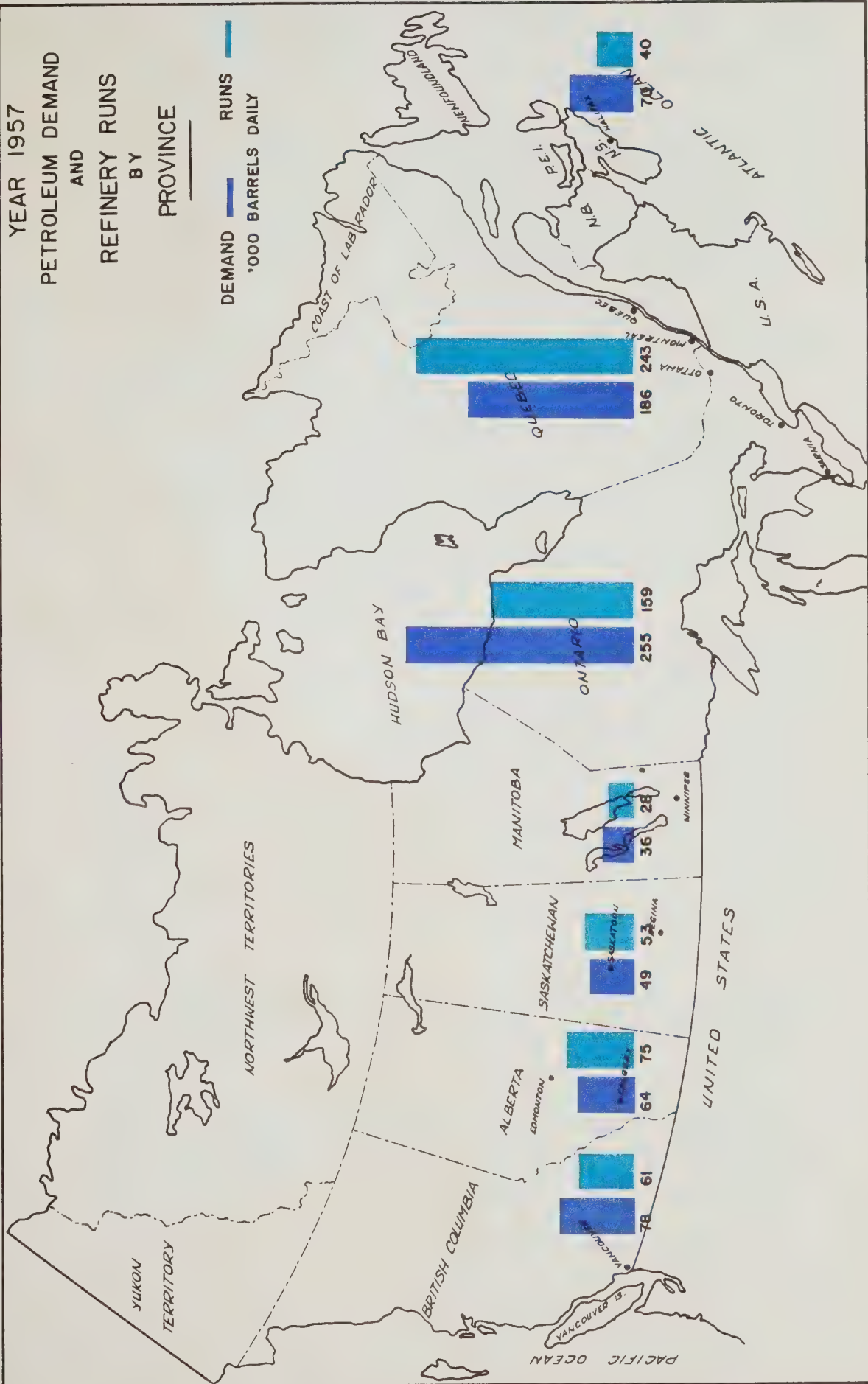
- DOMESTIC
- U.S.A.
- OTHER FOREIGN
- IMPORTS-EXPORTS
- '000 BARRELS DAILY





YEAR 1957  
PETROLEUM DEMAND  
AND  
REFINERY RUNS  
BY  
PROVINCE

DEMAND    RUNS  
'000 BARRELS DAILY







#### IV — Present Canadian Crude Oil Production

No one would wish to minimize the serious problems created for Alberta producers by the recent declines in crude oil nominations. At the same time, any formulation of long-range policy necessarily has to be based on basic trends in the Canadian producing industry rather than on the immediate situation.

As a starting point, it must be emphasized that current Alberta nominations reflect a number of immediate adverse factors. Firstly, Saskatchewan production increased from 58,000 barrels daily in 1956 to 101,000 barrels daily in 1957, which was by far the sharpest increase recorded by that Province, and which displaced a comparable volume of Alberta crude. Also, our own operations indicate that the business recession and the mild winter have somewhat slowed the growth of market demand for petroleum products. Unfortunately, statistical data on demand, refinery runs, and inventories are not precise or recent enough to permit exact estimates of the influence of these factors.

Until the sharp drop in production, of recent months, Canadian crude oil production as a whole has been growing for several years at a rate unmatched in any other major producing area of the world. Canada's crude oil production in 1957 was more than twice that of 1953 and nearly twice the rate even of as recently as 1954. Iran was the only other country where such rapid proportionate growth occurred in the same period, but the trend in Iran is distorted by the 1951-4 shutdown. It is true of course that in the early postwar years, when Canadian producibility was still small, other producing areas showed faster relative growth. Data on crude oil production in major producing countries are given in Exhibit B.

Another significant fact is that while Canadian production has continued far below producibility, notably in Alberta, comparison between production and reserves shows a relatively favourable pattern.

Canadian crude oil production in 1957 amounted to 5.65% of estimated year-end reserves. This is not an unsatisfactory showing for a relatively new producing area. In Venezuela, where production and market outlets are of much longer standing, the comparable



ratio for 1957 was 6.34%. And in the United States, where production is now considered very high relative to remaining petroleum resources, the ratio in 1957 was but 8.09%. Computation of these ratios is shown in Exhibit C.

These facts tend to support the conclusion that, from its inception and through most of the year 1957, the Canadian producing industry made impressive progress in finding outlets for its growing supplies, relative to the trends in other areas, until current short-term factors began to impinge upon nominations.

The next two sections of this submission concern probable outlets for Canadian crude oil in the years immediately ahead.





## V — Future Outlets for Canadian Crude Oil — The United States Market

It is our opinion that, due to transportation costs, the economic market for Western Canadian crude comprises the North-Central and North-West areas of the United States, and the Canadian markets to the west of the Province of Quebec.

Exports of Canadian crude oil to the United States did not become significant in volume until 1955. The following table shows the volumes since that time, divided between the North-Central area of the United States and the United States West Coast.

	<i>U.S. North-Central</i>	<i>U.S. West Coast</i>	<i>Total</i>
	<i>—————'000 barrels daily—————</i>		
1955	15	31	46
1956	50	67	117
1957	56	95	151
January, 1958	73	52	125

The current decline in Canadian crude oil exports to the United States is partly due, of course, to return of normalcy following the situation a year ago when the Suez crisis was providing additional outlets for Canadian crude. The extent to which these exports have also been affected by the United States "voluntary" restrictions program cannot be measured precisely.

While no significant estimates can be made regarding possible modifications of the United States petroleum imports policy within the next twelve or twenty-four months, it is our opinion that the United States will be compelled, by the very early 1960's, to liberalize the present policies. / ?

During the three years 1955-7 an average of 55,300 wells was drilled annually in the United States, 31% more per year than in the preceding eight years 1947-54. Yet the average of new oil reserves found annually in 1955-7 was 12% below the annual average in 1947-54. To anyone familiar with oilfield operations, these trends clearly indicate levelling off of production potential.



In a study prepared last year, the Petroleum Department of The Chase Manhattan Bank, of New York City, estimated that the petroleum requirements of the United States would reach 11,200,000 barrels daily in 1961, and 14,300,000 barrels daily in 1966.

In evaluating whether these needs could be met under continued stringent import policies, The Chase Manhattan Bank study made the following significant analysis:

"We have predicted that domestic demand by 1966 will grow to approximately 14.3 million barrels per day. And we are now faced with this question: Is it plausible to believe that domestic production can continue satisfying 90 percent of the nation's tremendous thirst for oil? To achieve this objective and maintain our present reserve capacity, we would have to find one and a half barrels of oil for every barrel produced. Based upon the demand outlook as we see it, cumulative consumption of domestic crude oil in the next decade must total 38 billion barrels. Gross additions to reserves, therefore, would add up to 57 billion barrels. That means we ought to find 4.5 billion this year and gradually boost our discovery rate up to 7.1 billion by 1966. If recent drilling results continue, a total of 1.2 million wells would have to be drilled in the next ten years, ranging from about 86,000 this year up to around 165,000 in 1966."

This study concludes that United States production cannot reasonably be forecast at above 9,600,000 barrels daily for 1961 and 11,000,000 barrels daily for 1966, indicating net import requirements of 1,600,000 barrels daily in 1961, and 3,300,000 barrels daily in 1966. This compares with a net imports rate of about 1,000,000 barrels daily into the United States in 1957. The above analysis is objective, in our opinion, and in keeping with the realities of petroleum exploration and production.

If marked change can be expected in United States petroleum imports policy, what is the size of potential market that could be expected for Canadian crude?



Another study by The Chase Manhattan Bank forecasts requirements for crude oil in the West Coast area of the United States to be 1,950,000 barrels daily for 1966. Production in California at that time is envisaged at being about the same as the 1956 level, namely, 1,040,000 barrels daily, while supplies of crude oil to the area from other sources within the United States are estimated at 250,000 barrels daily. These estimates indicate a deficit of the order of 660,000 barrels daily which would have to be covered by imports. This compares with the actual deficit of 179,000 barrels daily in 1956.

We do not wish to imply that all, or even the major part, of this West Coast deficit will become an assured market for Canadian crude. This will depend particularly upon relative delivered prices of other offshore crudes. Also, it is not inconceivable that additional pipelines could be built into the West Coast area from inland United States producing centers. X

However, it is our opinion, as stated, that well before the year 1966, the United States Government will have liberalized its petroleum imports policy in order to conserve remaining domestic petroleum resources. Under such conditions, normal economic forces will tend gradually to contract the market area of United States crude oil, back toward the producing centers. Canadian crude oil should be in a strong position, therefore, to compete for this large West Coast import requirement, particularly in the northern part of the West Coast where transportation factors are most favorable.

Prospects for expanded outlets for Canadian crude oil are even more encouraging in the North-Central areas of the United States. We wish to consider first the three-state area of Minnesota, Wisconsin, and Michigan, which in 1956 consumed approximately 670,000 barrels daily. This area has limited indigenous production—about 29,000 barrels daily in Michigan—which is based on small reserves and is expected to decline.

Analyses of population trends and trends in per capita utilization of petroleum in this three-state area indicate that in 1960 its petroleum demand will be about 80,000 barrels daily above the 1956 level, and in 1965 will be 210,000 barrels higher than in 1956. X





Due to geography and transportation factors, this inland market is one in which Canadian oil is in a position to compete strongly. Hence, under the revised American petroleum policies which we believe to be inevitable, a substantial access to this market should develop. We believe it is realistic to envisage Canadian crude oil supplying not only the incremental demand which will develop, as indicated above, but even beyond that, making significant inroads into supplies of United States origin which currently supply the bulk of demand in the area.

At a somewhat later time, we believe the opportunity will develop for penetration of Canadian oil into the even larger markets of three adjacent States: Ohio, Indiana and Illinois. Petroleum demand in this area in 1956 amounted to over 1,000,000 barrels daily. There is somewhat larger local production in this area—approximately 270,000 barrels daily in 1956—but again the crude oil reserves are inadequate to support any expansion of production. We estimate that, in 1965, demand in this area will reach a total of 1,336,000 barrels daily, which is 310,000 barrels daily above 1956.

Demand and production data for these North-Central areas of the United States will be found in Exhibit D, together with the above forecasts of demand.



## VI — Future Outlets for Canadian Crude Oil — The Canadian Market

The previous section outlined the strong growth in exports of Canadian crude oil to United States markets, expected in the years ahead. This section will deal with the expansion which we foresee in Canadian markets for Canadian crude oil.

The recently released Gordon Commission Report forecasts that between 1955 and 1965 Canada's population will increase by 3,000,000 to 4,000,000, and that Gross National Product in constant dollars will increase at a rate equivalent to about 3.8% to 4.3% annually. This latter estimate compares with the actual growth in Gross National Product which occurred between 1950 and 1957, which was at a rate of 4.3% annually.

It is our opinion that economic growth in Canada at the rate envisioned by the Gordon Commission Report would result in growth of petroleum demand at a rate of approximately 6.3% annually during the period 1957 to 1965. This would mean that by 1965 petroleum demand would be at a level of 1,200,000 barrels daily, compared with the 1957 level of 738,000 barrels daily, an increase of 462,000 barrels daily.

It was noted earlier that petroleum demand in Canada increased between 1950 and 1957 at an average annual rate of 10.4%. In developing our forecast of petroleum demand growth from now to 1965 we have given effect to a number of special factors, which will tend somewhat to slow the growth of petroleum demand, relative to the postwar period to date. The three most important such factors are: first, the growing use of natural gas for domestic and industrial purposes; second, the fact that the major part of the conversion to petroleum fuel for space heating has now been accomplished; and third, the substantial degree to which mechanization of Canadian agriculture has been completed since the war.

Although the growth of petroleum demand foreseen from now to 1965 is at a smaller percentage rate than in recent years, it is still a very rapid growth, compared for example with the 3% to 4% growth rate which most economists believe is the basic trend





in the United States. We would like to note also that our petroleum forecasts indicate a somewhat more rapid growth than the projections contained in "Canadian Energy Prospects" by John Davis, prepared at the request of the Gordon Commission.

Of the additional demand of 462,000 barrels daily which we believe will develop in Canada between now and 1965, the larger part by far will develop in the areas west of Quebec. In recent years the percentage growth rate of demand in the areas west of Quebec has been about the same as in Quebec and the Atlantic Provinces. Our demand forecasts, contained in Exhibit E, indicate that this pattern will continue, and that the areas west of Quebec will continue to account for two-thirds of Canadian demand.

Thus, of the total estimated increase in Canadian demand of 462,000 barrels daily during the period 1957 to 1965, 304,000 X barrels will be in areas now served by Canadian crude. Allowance must also be made for the continuing relative growth of Ontario as a refining center, based largely on Canadian crude and the resulting gradual decline of product shipments from Montreal into Ontario. An increase of about 340,000 barrels daily of Canadian crude oil will therefore be required to meet demands. In 1957, utilization of Canadian crude in Canadian refineries amounted to 354,000 barrels daily. By 1965 it will be nearly 700,000 barrels daily, or virtually double the 1957 rate. Even by 1960, in our judgement, running of Canadian crude in Canadian refineries served by present transportation facilities would be at least 122,000 barrels daily above the level of 1957.



## VII — Considerations Concerning an Alberta-Montreal Pipeline

Up to this point we have attempted to sketch the growth that can be expected in the economic markets for Canadian crude. While we do not wish to imply that this growth will necessarily always proceed smoothly and without interruption, it is our opinion that, barring unforeseen circumstances, the expansion of these markets will result in an impressive average growth trend for Canadian production in the years ahead.

Against this background we would like to comment rather briefly upon some of the major problems inherent in an Alberta-Montreal pipeline.

The first issue is whether the area from Montreal eastward is an economically sound outlet for Canadian crude oil. Petroleum, especially in the crude oil form, is both bulky and heavy compared to its value; hence transportation is normally of great relative importance in the final delivered price. As is well known, pipeline transportation, while efficient compared with railway or truck movement of petroleum, is more costly than movement by ocean tanker, on a per barrel mile basis. We feel that a considerable burden of proof therefore must be borne by a concept whereby a pipeline some 2,200 miles in length would be built into a seaboard area which is a comparable distance from the large petroleum resources of the Caribbean, as well as having access to competitive Middle East supplies.

The second issue concerns rigidity. From the point of view of avoiding economic waste, or of obtaining return on investment, it would be necessary to assure continued and guaranteed utilization of such a facility if it were built. Guaranteed utilization of the line would require that Canadian crude oil be used in the refineries of Montreal regardless of any change that might occur in the relative economics of Canadian versus offshore crude delivered at Montreal. Regardless of opportunities that might arise, to obtain offshore supplies at lower cost, crude oil from the pipeline would have to be used. The industry in the Quebec area would thus be placed in the position of a buyer relying mainly upon a single source of supply, a markedly disadvantageous position compared to that of a buyer with access to a number of alternate sources of supply.



The present relationship between the cost of offshore crude oils laid down in Montreal, and Canadian crude oil, could change radically under various circumstances, and in all probability we will see in the period ahead considerable fluctuation in this relationship. In regard to the prices posted for the offshore crudes at their points of origin, the trend in recent years has been toward weakening of the traditional dominance of United States Gulf Coast prices over the world crude price structure. This trend is likely to continue, in view of the increasing number of significant producing areas abroad, as well as the growing number of companies involved in overseas production, and intensifying competition for crude outlets.

Further, changes in marine rates can materially affect relative landed costs of offshore crude oil. Exhibit F shows the change in landed cost of various offshore oils that would result from 20-point changes in marine rates. For example, for a particular Persian Gulf crude oil, a reduction of tanker rates from USMC-20% to USMC-40% would reduce the landed cost at Montreal by 36¢ per barrel. For a Venezuelan crude oil, the effect would be 12¢, still a very real factor.

Broadly, we feel that the pipeline could be kept continuously utilized only by imposition of a rigid pattern of supply. Under changing conditions from time to time, this rigid pattern would become uneconomic relative to alternative supplies from offshore. Under such circumstances we believe the refining-marketing industry could not maintain its present efficiency in providing consumers with petroleum requirements at reasonable cost, in the areas currently utilizing offshore crudes.

Because it is impossible to foresee precisely what future movements in the world price structure and marine rates might be, we should consider the pipeline issue under two different sets of circumstances.

On the one hand, if the offshore crudes did become increasingly costly relative to Canadian crudes, which we consider unlikely, this would mean that the Canadian crude would be able to penetrate that much more rapidly into the markets of the United States North-Central and West Coast. This of course assumes,

What about the gasoline consumer?





which as stated before we believe to be realistic, that United States petroleum imports policy will shift toward greater utilization of imported crude oils.

On the other hand if, as seems more likely, the foreign crudes tend to decline in delivered cost relative to Canadian crudes, the distortion forced upon the industry's operations in Quebec by a pipeline would be more and more severe, and we find it difficult to visualize how the industry could operate on a flexible and competitive basis.

One of the main problems that would arise would be the substantial difference in cost of crude supplies of those refiners tied to the Canadian crude versus those using offshore crude, in Quebec and the Maritimes. We believe that this problem would become increasingly complicated.



### VIII — Considerations Concerning an Energy Board

As indicated at the start of this submission, McColl-Frontenac does not believe that creation of an Energy Board would be a constructive step, insofar as the petroleum industry is concerned. We do not believe that there is a need for such an additional agency, and we are greatly concerned that creation of an Energy Board would encourage a tendency toward growing dominance of political and sectional considerations over economic factors, in regard to petroleum.

Our position is most certainly not that the petroleum industry is unimportant to the nation, or that its affairs should not be the concern of the people of Canada and of the Dominion and Provincial Governments. Unquestionably, the industry is of vital importance: to all regions of the country as petroleum consumers, and to Alberta and Saskatchewan in particular as petroleum producers.

But we cannot subscribe to the philosophy that the importance of a particular economic sector automatically creates a justification for additional governmental bodies to oversee that sector. Such additional governmental bodies are justified only when there are specific problems or difficulties which private initiative cannot handle.

The objective of periodically reviewing Canada's energy position in its entirety—collecting information and gathering informed opinion, defining trends and evaluating future prospects—can best be achieved through Royal Commissions such as the present one. Periodic reviews of this type will supplement the studies of petroleum matters presently conducted by the Dominion and Provincial authorities. In this way broad guidance will be provided to deal wisely with such issues as pipelines and energy exports, and under existing legislative enactments the present governmental bodies should be fully equipped to perform their necessary functions.

On the other hand it is our view that creation of a new Energy Board as a continuing Dominion agency, even if originally conceived as a purely advisory group, would tend to result in the





multiplication of administrative functions. The very existence of such a Board would encourage various groups to seek specific petroleum policies in their favour, and lodge in the Energy Board of authority to administer such policies. We sincerely doubt that the result would be conducive to most effective performance by the petroleum industry.



## IX — Short-Term Measures to Improve Alberta Nominations

As indicated in previous sections, the trend in regard to Alberta nominations will be markedly favorable, in the years ahead, in our best judgement. In the short-term, improvement may well begin fairly soon, depending on overall economic trends and other factors. However, the present problem in Alberta is sufficiently serious that we believe all parts of the industry should endeavour to do whatever is feasible immediately to improve nominations.

We are aware that other companies are making adjustments in this direction, which should be of material importance. McColl-Frontenac, for its own part, intends this year to run 15,600 barrels daily of Canadian crude at its Port Credit refinery, recently acquired, in comparison with the 11,240 barrels daily run in 1957 and the 6,700 barrels daily run in 1956. This reflects the current trend in the industry toward gradual shift of refinery growth westward from the Montreal area. Also, we expect that expanding runs at our Edmonton refinery will require about 1,000 barrels daily of additional Canadian crude, compared with 1957. Finally, our majority shareholder—The Texas Company—has authorized us to indicate that Texaco's new Puget Sound refinery will utilize a significant volume of Canadian crude oil in its crude stream.



# SUPPLY AND USE OF CRUDE OIL PLUS IMPORTS AND EXPORTS OF PETROLEUM PRODUCTS '000 BARRELS DAILY

## USE OF CANADIAN CRUDE OIL

### In Refineries in:

	1930	1940	1950	1957
British Columbia.....	—	—	—	61
Alberta and N.W.T.....	4	12	42	75
Saskatchewan.....	—	10	27	53
Manitoba.....	—	1	4	28
Ontario.....	—	1	1	137
<b>TOTAL.....</b>	<b>4</b>	<b>24</b>	<b>74</b>	<b>354</b>

### Export to U.S.A.:

North-Central.....	—	—	—	57
Puget Sound.....	—	—	—	74
Other West Coast.....	—	—	—	20
<b>TOTAL.....</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>151</b>

### Other Disposition:

.....	—	—	6	1
<b>TOTAL CANADIAN PRODUCTION.....</b>	<b>4</b>	<b>24</b>	<b>80</b>	<b>506</b>

## USE OF OTHER CRUDE OIL

### From U.S. Sources:

British Columbia.....	10	16	23	—
Alberta.....	8	—	—	—
Saskatchewan.....	5	1	—	—
Manitoba.....	1	1	1	—
Ontario.....	25	41	62	17
Quebec.....	6	18	—	10
Atlantic Provinces.....	—	1	—	1
<b>TOTAL.....</b>	<b>55</b>	<b>78</b>	<b>86</b>	<b>28</b>

### From other Foreign Sources:

British Columbia.....	—	1	—	—
Ontario.....	—	—	5	5
Quebec.....	17	19	115	233
Atlantic Provinces.....	7	15	21	39
<b>TOTAL.....</b>	<b>24</b>	<b>35</b>	<b>141</b>	<b>277</b>

## PRODUCT IMPORTS

### All Foreign Sources:

British Columbia.....	6	4	19	15
Alberta.....	—	1	—	1
Saskatchewan.....	3	—	—	—
Manitoba.....	2	1	1	2
Ontario.....	9	7	17	24
Quebec.....	6	5	26	28
Atlantic Provinces.....	1	3	10	26
<b>TOTAL.....</b>	<b>27</b>	<b>21</b>	<b>73</b>	<b>96</b>

## PRODUCT EXPORTS

International Trade.....	2	1	—	8
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### NOTE:

1) Total crude supplied to Canadian Refineries plus product imports does not equal demand due to inventory change, crude loss, line fill, and a minor amount of product export.

2) Canadian crude oil production includes small quantities of natural gas liquids.





**PETROLEUM DEMAND AND REFINERY RUNS, BY PROVINCE**  
**'000 BARRELS DAILY**

	<u>1930</u>		<u>1940</u>		<u>1950</u>		<u>1957</u>	
	<u>Demand</u>	<u>Ref. Runs</u>	<u>Demand</u>	<u>Ref. Runs</u>	<u>Demand</u>	<u>Ref. Runs</u>	<u>Demand</u>	<u>Ref. Runs</u>
British Columbia.....	19	10	21	17	46	23	78	61
Alberta and N.W.T.....	7	12	12	12	33	42	64	75
Saskatchewan.....	10	5	11	11	28	27	49	53
Manitoba.....	4	1	7	2	15	5	36	28
Ontario.....	38	25	55	42	121	68	255	159
Quebec.....	23	23	35	37	92	115	186	243
Atlantic Provinces.....	7	7	20	16	35	21	70	40
	<u>108</u>	<u>83</u>	<u>161</u>	<u>137</u>	<u>370</u>	<u>301</u>	<u>738</u>	<u>659</u>
TOTAL CANADA.....	108	83	161	137	370	301	738	659

NOTE: Demand includes total product consumption and refinery fuel and loss.



# CRUDE OIL PRODUCTION, MAJOR PRODUCING COUNTRIES

1947-1957

'000 BARRELS DAILY

	CANADA *	U.S.A. *	VENEZUELA	IRAN	IRAQ	KUWAIT	SAUDI ARABIA	INDONESIA
1947.....	21	5452	1192	425	98	45	246	22
1948.....	34	5921	1339	520	71	127	390	87
1949.....	58	5477	1321	561	85	247	477	118
1950.....	80	5906	1498	664	136	344	547	133
1951.....	130	6720	1705	350	178	561	762	152
1952.....	167	6868	1804	28	385	747	825	171
1953.....	225	7113	1765	27	576	862	845	206
1954.....	266	7035	1895	61	626	952	953	218
1955.....	356	7579	2157	329	688	1092	965	239
1956.....	471	7952	2457	539	637	1093	986	256
1957.....	506	7981	2778	720	446	1141	992	311

\*Includes Natural Gas Liquids Production.

SOURCE: 1947-56 U.S. Bureau of Mines; 1957 U.S. Bureau of Mines and Oil and Gas Journal  
Canadian Production Data from Dominion Bureau of Statistics and Canadian Petroleum Association.





# PRODUCTION-RESERVES RATIOS: CANADA, VENEZUELA, U.S.A.—1957

	<u>1957 Production '000 barrels daily</u>	<u>1957 Total Production '000,000 barrels</u>	<u>End—1957 Reserve '000,000 barrels</u>	<u>Percentage 1957 Production of End—1957 Reserves</u>
<u>INCLUDING NATURAL GAS LIQUIDS</u>				
Canada.....	506	184.8	3269	5.65%
Venezuela*.....	2779	1014.0	16000	6.34
U.S.A.....	7981	2913.2	35988	8.09
<u>EXCLUDING NATURAL GAS LIQUIDS</u>				
Canada.....	498	181.8	2874	6.33
Venezuela*.....	2779	1014.0	16000	6.34
U.S.A.....	7175	2618.9	30300	8.64

\*Venezuelan Production of Natural Gas Liquids is Minimal.

SOURCES: Canada—Canadian Petroleum Association.

Venezuela—Venezuelan Embassy.

U.S.A.—Bureau of Mines and Oil and Gas Journal.



# PETROLEUM DEMAND IN NORTH-CENTRAL U.S.A.

	MINNESOTA, WISCONSIN & MICHIGAN				OHIO, INDIANA & ILLINOIS			
	<u>1950</u>	<u>1956</u>	<u>1960</u>	<u>1965</u>	<u>1950</u>	<u>1956</u>	<u>1960</u>	<u>1965</u>
Population ('000,000).....	12.9	14.6	15.5	16.8	20.7	23.0	24.4	26.3
Four-Product* Demand per Capita (bbls./year).....	12.35	14.54	15.48	16.69	12.15	14.22	14.99	16.16
Four-Product* Demand in Area ('000 bbls. daily).....	435	581	655	766	689	893	1000	1163
Equivalent Crude Demand** ('000 bbls. daily).....	500	668	753	881	792	1026	1149	1336
Crude Demand Increment over 1956 ('000 bbls. daily) ..	(168)	—	85	213	(234)	—	123	310
Crude Production ('000 bbls. daily).....	43	29	—	—	208	270	—	—

\*Gasoline, Kerosene, Distillates, Residual Fuel.

\*\*Based on Four-Product Yield at 87% of Crude Run.



**REGIONAL PETROLEUM DEMAND AND REFINERY RUNS IN CANADA**  
**ACTUAL 1950 AND 1957 — FORECAST 1960 AND 1965**

	1950		1957		1960		1965		ANNUAL GROWTH RATE 1957 thru 1965	
	Demand	Refinery Runs	Demand	Refinery Runs	Demand	Refinery Runs	Demand	Refinery Runs	Demand	Refinery Runs
British Columbia.....	46	23	78	61	95	—	128	—	6.4 %	—
Alberta & N.W.T.....	33	42	64	75	77	—	103	—	6.1	—
Saskatchewan.....	28	27	49	53	60	—	81	—	6.5	—
Manitoba.....	15	5	36	28	43	—	56	—	5.7	—
Ontario.....	121	68	255	159	311	—	418	—	6.4	—
SUB-TOTAL.....	243	165	482	376	586	476	786	692	6.3	7.9 %
Quebec.....	92	115	186	243	230	—	304	—	6.3	—
Atlantic Provinces.....	35	21	70	40	84	—	110	—	5.8	—
SUB-TOTAL.....	127	136	256	283	314	346	414	438	6.2	5.6
TOTAL CANADA.....	370	301	738	659	900	822	1200	1130	6.3	7.0





# EFFECT OF MARINE RATES UPON DELIVERED PRICES OF CRUDE OIL AT MONTREAL

VIA PORTLAND PIPE LINE	(DOLLARS PER BARREL)			
	ARABIAN 34° (Sidon)	KUWAIT 31° (Mina al-Ahmadi)	JUSEPIN 32° (Caripita)	TIA JUANA 31° (Amuay Bay)
Posted Price.....	\$2.45	\$1.85	\$2.99	\$2.80
Pipeline Tariff.....	.11	.11	.11	.11
	2.56	1.96	3.10	2.91
Marine Freight				
@ U.S.M.C.—20%*	.83	1.42	.34	.33
@ U.S.M.C.—40%	.62	1.06	.25	.25
@ U.S.M.C.—60%	.42	.71	.17	.17
Delivered Price				
@ U.S.M.C.—20%	3.39	3.38	3.44	3.24
@ U.S.M.C.—40%	3.18	3.02	3.35	3.16
@ U.S.M.C.—60%	2.98	2.67	3.27	3.08
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